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EXAMINER	
HALL, COREY JOHN	

ART UNIT	PAPER NUMBER
3743	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/561,728	NICHOLAS ET AL.	
	Examiner	Art Unit	
	COREY HALL	3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-64* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/22/2005, 05/24/2007* .
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement filed 12/22/2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

3. Claims 1, 18, 30, 46, 47, 59 and 62, are objected to because of the following informalities: claim 1, line 2 has “section ,” which should be changed to "section,", claim 18, line 2 has "between 25 0.25m" which should be changed to "between 0.25m", claim 30, line 1 has "t o" which should be changed to "to", claim 46, line 4 has “section ,” which should be changed to “section,”, claim 47, line 4 has “section ,” which should be changed to “section,” claim 59, line 2 has “more than 20 about 40%” which should be changed to “more than about 40%”, and claim 62, line 4 has “section ,” which should be changed to “section,”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-9, 15, 16, and 18-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varvat (US 5,806,205 provided by Applicant) in view of Buttner et al. (US Patent No. 5,263,267 provided by Applicant).

10. Regarding claims 1-9, 15, 16, and 18-25, Varvat discloses a vessel for drying organic waste (column 1, lines 8-11 describing an apparatus for dehydrating waste matter such as organic residue), the vessel comprising at least two adjacent elongate channels 22 (figure 3 showing a total of eight channels), each channel having a length (figure 3 showing that the channels have a length) and a substantially segment ("segments" column 1, lines 63-64) shaped cross section (figure 3 showing the cross section of the channels), comprising four channels (figure 3), comprising eight channels (figure 3), comprising twelve channels (figure 1 showing multiple layers of channels where each layer has eight channels as shown in figure 3), and a vessel being similar to Figure 2 (figure 3 showing channels similar to those shown in Applicant's figure 2), an axle 34 (figure 5) associated with each channel, each axle mounted for rotation about an axis parallel to the length of its respective channel (figure 4 showing an axle inside a channel), each axle mounting one or more helical blades 30 (figure 5 showing the axles having helical screws); an interface (figure 3 and figure A below which is similar to the interface of Applicant's figure 6a) between the two channels (figure 3 and figure A below showing spaces between each channel 22 through which the heating fluid could flow); a first heater 42 (figure 1 showing an incineration chamber) for heating the channels 22 (figure 3) and the interface (figure 3 and figure A below) between adjacent channels 22 (figure 3) is heated so as to enhance breakdown of the organic waste at the interface, the interface (figure 3 and figure A below) is heated by the first heater 42 (figure 1), except for with a radius of each channel is between 0.25 m and 0.75 m, the

radius is between 0.3 m and 0.6 m, the radius is 0.4 m, the length of each channel is between 3 m and 4 m, the length of each channel is 3 m, and during drying the axles associated with adjacent channels are arranged to rotate in opposite directions. However, Buttner et al. teaches twin counter-rotating screws (column 15, line 11) which are eight feet long or 2.44 meters long and have screw diameters of 10.5 inches or 0.267 meters (column 35, lines 8-10), during drying ("drying efficiency" column 15, lines 9-15 describing the drying efficiency being better with higher speed of counter-rotating screws) the axles associated with adjacent channels are arranged to rotate in opposite directions ("twin counter-rotating screws" column 15, line 11), and a second heater which is an electric resistance element for heating the screws (column 12, lines 14-18) in order to dry waste organic sewage (column 6, lines 67-column 7, line 2). One would be motivated to combine Varvat with Buttner et al. because the use of rotating twin screws in a counter-rotating manner is a known technique that improves the lifting and upward movement of material in an elongated mixing zone formed by counter-rotating screws as stated in Buttner et al. (column 28, lines 33-38). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Varvat reference, to include during drying the axles associated with adjacent channels being arranged to rotate in opposite directions, as suggested and taught by Buttner, for the purpose of drying waste organic sewage.

It would have been an obvious matter of design choice to increase the radius of the channels from 0.133 m to 0.25 m, 0.3 m or 0.4 m and the length of each channel from being 2.44 meters to being 3 m, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose, 105 USPQ 237 (CCPA 1955).*

Figure A.

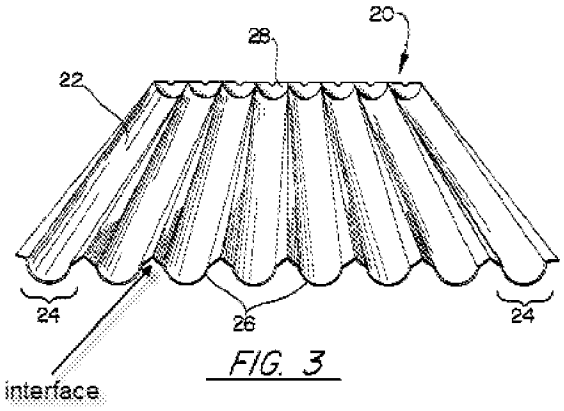

FIG. 3

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Varvat (US 5,806,205) as modified by Buttner et al. (US Patent No. 5,263,267) as applied to claim 15 above, and further in view of Sauda et al. (US Patent No. 4,661,290).

12. In regards to claim 17, Varvat as modified by Buttner et al. discloses the claimed invention including from Buttner et al. a second heating means comprising a plurality of resistance heating elements resident within the screw member (column 37, lines 56-58 describing resistance heating which is similar to the second heater of Applicant's Specification at page 6, lines 1-2), except for the second heater being located at the interface of the channels rather than inside the screw. However, Sauda et al. teaches an electric heater 8 (figure 1, column 6, lines 57-60) placed on the outside of the body 1 (figure 1) in order to heat the solid waste material in the hollow cylindrical body (abstract, lines 4-6). One would be motivated to combine Varvat as modified by Buttner et al. which has the prior art element of passing heated air beneath a plurality of channels that include interfaces between the channels with Sauda et al. which has the prior art element of electric heaters placed on the outside of a hollow cylindrical body for heating solid waste material in the hollow cylindrical body to obtain the predictable result of greater heat

transfer to the waste material being heated. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Varvat as modified by Buttner et al. reference, to include the second heating means comprising a plurality of heating elements on the interface of the channels, as suggested and taught by Sauda et al., for the purpose of heating the solid waste material in the body.

13. Claims 10-14 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varvat (US 5,806,205) as modified by Buttner et al. (US Patent No. 5,263,267) as applied to claims 1 and 15 above, and further in view of Van Den Broek (US Patent No. 4,926,764).

14. In regards to claims 10-14 and 26-30, Varvat as modified by Buttner et al. discloses the claimed invention including from Varvat an apparatus for drying organic waste (column 1, lines 8-11 describing an apparatus for dehydrating waste matter such as organic residue) comprising: a heat exchanger (column 1, lines 45-49), the heat exchanger using the heat generated by the conversion unit 42 (figure 1, "incineration chamber" column 4, lines 48-51) to heat the vessel, the heat exchanger circulates hot gas beneath 48 (figure 1, column 4, lines 51-53 describing the path of the heated gas following arrows of 48) the vessel and from Buttner et al. a first vessel 305 (figure 18, column 34, lines 8-13 describing the preheater having a screw the same as used in carrying out the invention) according to claim 1 or claim 15, for mixing and heating the organic waste to form an organic paste (column 6, lines 52-66 describing the invention being used with organic sewage sludge that ranges from pasty through crumbly and the feed material starting out in different physical forms at column 6, lines 39-44), adding the organic paste to a first organic powder to form a mixture (column 17, lines 4-10 describing the invention permitting the adding of a dry material recycle with the wet feed); a second vessel 326 (figure 18, column 34, lines 58-

61 describing the preheated material entering the dryer) according to claim 1 or 15 for mixing and heating the mixture to form a second organic powder (column 35, lines 47-52 describing the material having a moisture content of down to about 5% after passing through the unit), a vessel 326 (figure 18) according to claim 1 or claim 15, for mixing and heating a first quantity of organic waste to form an organic powder (column 35, lines 60-65 describing the organic waste being processed from wet feed to dried material of less than 5% moisture and freely emitting air-borne dust and recycling a previously dried material at column 17, lines 1-5), except for a means for adding the organic paste to a first organic powder, means for controlling the rate of addition of the organic paste to the first organic powder, such that the resulting mixture is substantially in powder form; a conversion unit for converting a portion of the organic powder to generate heat for heating a second quantity of organic waste, and the conversion unit being a combustion unit for burning the portion of the organic powder. However, Van Den Broek teaches an apparatus with a means for adding 26 (figure 1, column 3, lines 4-6 describing the dosing screw conveyor having a variable speed drive and taking the concentrated stream from the hopper to the mixer) a concentrated stream (column 2, lines 54-61 describing a sewage sludge stream after the sewage sludge has been dewatered and concentrated at 12 of figure 1) to a mixer 28 (figure 1) where dehydrated particulate material is combined with the concentrated stream to provide a feedstock having moisture content from 30 to 50 percent (column 3, lines 7-9) that then enters a second vessel 34 (figure 1) for further drying; a means for controlling 26 (figure 1) the rate (column 3, lines 4-5 describing a screw conveyor having a variable speed drive) of addition of the concentrated stream to the first dehydrated particulate material, and a combustion chamber 38 (figure 1) for converting a portion of the dehydrated particulate material (column 3, lines 21-30

describing the combustion chamber burning solid fuel including the dehydrated particulate sludge) to generate heat for heating (column 3, lines 31-36 describing the combustion products being used in the drier) a second quantity of sludge feedstock in order to permit absorption of the desired quantity of moisture from the sludge feedstock as it passes through the drier (column 3, lines 39-42) and to provide a feedstock having a lower moisture content than the concentrated stream (column 6, lines 4-7). One would be motivated to combine Varvat as modified by Buttner et al. with Van Den Broek because the similar devices mix dehydrated particulate material with a concentrated stream of sludge prior to the mixture entering a dryer as well as use a combustion unit for generating heat for the dryer and Van Den Broek teaches the known technique of using a dosing screw to control the rate at which the concentrated stream feeds into the mixer (column 3, lines 4-6) as well as burning dehydrated particulate sludge to generate heat (column 3, lines 21-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Varvat as modified by Buttner et al. reference, to include a means for adding the organic paste to a first organic powder, means for controlling the rate of addition of the organic paste to the first organic powder, such that the resulting mixture is substantially in powder form; a conversion unit for converting a portion of the organic powder to generate heat for heating a second quantity of organic waste, and the conversion unit being a combustion unit for burning the portion of the organic powder, as suggested and taught by Van Den Broek, for the purpose of permitting absorption of the desired quantity of moisture from the sludge feedstock as it passes through the drier and providing a feedstock having a lower moisture content than the concentrated stream.

15. Claims 31-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buttner et al. (US Patent No. 5,263,267) in view of Van Den Broek (US Patent No. 4,926,764).

16. Regarding claims 31-38, Buttner et al. discloses a method (column 4, line 16) for drying organic waste ("waste organic sewage" column 6, line 67-column 7, line 2), comprising the steps of mixing and heating the organic waste (column 34, lines 8-13 describing a preheater that may include a screw that is the same as used in carrying out the invention) to form an organic paste (column 16, lines 31-55 describing a method for reducing the water content from 80 percent to 45 percent or less using the heated screws of the drying device); then adding the organic paste to a first organic powder to form a mixture (column 16, lines 56-column 17, line 10 describing blending dried product with wet feed material and stating that the invention permits the recycling of wet feed into the method and apparatus in any proportion) and mixing and heating the mixture (column 19, lines 7-10 describing the screws rotating and being heated), the organic waste has a water content of more than about 40% by weight (column 16, lines 38-40 describing the sludge having an initial water content of 80 percent or more), the organic paste has a water content of between about 20% and about 30% by weight (column 6, lines 52-63 describing the preferred pasty material for use in the invention as pasty material with liquid of 1-2% to 90% or more and particularly preferring organic sewage sludge), the first organic powder has a water content of less than about 10% by weight (column 35, line 50 describing the dried material having a moisture content of between 60% down to about 5% or less), mixing and heating the mixture to form a second organic powder (column 17, lines 3-15 describing the invention recycling wet feed into the method and apparatus which would produce a second organic powder after drying the first organic powder that was recycled with the wet feed), the second organic powder has a

water content of about 10% by weight (column 35, line 50 describing the dried material having a moisture content of between 60% down to about 5% or less), the preliminary step of drying organic waste to form the first organic powder (column 17, lines 10-13 describing the invention as being capable to drying aqueous waste in the substantial absence of recycled dried product and describing the use of previously dried material at column 17, line 3), and the step of drying organic waste to form the first organic powder is done by mixing and heating the organic waste (column 17, lines 10-13 describing the use of the heated rotary screw to dry the product in the substantial absence of recycling product), except for the rate of addition of the organic paste to the first organic powder is such that the resulting mixture is substantially in powder form. However, Van Den Broek teaches a sludge stream treatment system (column 1, lines 35-36) having a means for adding 26 (figure 1, column 3, lines 4-6 describing the dosing screw conveyor having a variable speed drive and taking the concentrated stream from the hopper to the mixer) a concentrated stream (column 2, lines 54-61 describing a sewage sludge stream after the sewage sludge has been dewatered and concentrated at 12 of figure 1) to a mixer 28 (figure 1) where dehydrated particulate material 56 (figure 1, column 3, lines 66-68 describing a storage hopper that retains dehydrated particulate sludge for remixing with the concentrated stream of sewage sludge) is combined with the concentrated stream to provide a feedstock having moisture content from 30 to 50 percent (column 3, lines 7-9) that then enters a second vessel 34 (figure 1) for further drying (column 3, line 13) and a means for controlling 26 (figure 1) the rate (column 3, lines 4-5 describing a screw conveyor having a variable speed drive) of addition of the concentrated stream to the first dehydrated particulate material in order to permit absorption of the desired quantity of moisture from the sludge feedstock as it passes through the drier (column

3, lines 39-42) and to provide a feedstock having a lower moisture content than the concentrated stream (column 6, lines 4-7). One would be motivated to combine Buttner et al. with Van Den Broek because the similar devices mix dehydrated particulate material with a concentrated stream of sludge prior to the mixture entering a drier and Van Den Broek teaches the known technique of using a dosing screw to control the rate at which a concentrated stream feeds into a mixer (column 3, lines 4-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Buttner et al. reference, to include the rate of addition of the organic paste to the first organic powder being such that the resulting mixture is substantially in powder form, as suggested and taught by Van Den Broek, for the purpose of permitting absorption of the desired quantity of moisture from the sludge feedstock as it passes through the drier and providing a feedstock having a lower moisture content than the concentrated stream.

17. Regarding claims 39-43, Buttner et al. discloses an apparatus for drying organic waste ("waste organic sewage" column 6, line 67-column 7, line 2) comprising a first vessel 305 (figure 18) for mixing and heating the organic waste to form an organic paste (column 6, lines 52-66 describing the invention being used with organic sewage sludge that ranges from pasty through crumbly and the feed material starting out in different physical forms at column 6, lines 39-44), adding the organic paste to a first organic powder to form a mixture (column 16, line 56-column 17, line 10 describing blending dried product with wet feed material and stating that the invention permits the recycling of wet feed into the method and apparatus in any proportions); a second vessel 326 (figure 18) for mixing and heating the mixture to form a second organic powder (column 35, lines 47-52 describing the material having a moisture content of down to

about 5% after passing through the unit); the rate of addition (column 34, lines 51-58 describing a hopper with a volume-flow-control) of the organic paste to the first organic powder is such that the resulting mixture is substantially in powder form (column 35, lines 60-65 describing the dried material having a moisture content approaching zero and dried to the extent that they freely emit air-borne dust), the organic waste has a water content of more than about 40% by weight (column 16, lines 38-40 describing the sludge having an initial water content of about 80 percent or more), the organic paste has a water content of between about 20% and about 30% by weight (column 6, lines 52-63 describing the preferred pasty material for use in the invention as pasty material with liquid of 1-2% to 90% or more and particularly preferring organic sewage sludge), the first organic powder has a water content of less than about 10% by weight (column 35, lines 60-65 describing the dried material having a moisture content of less than 5% and dried to the extent that they freely emit air-borne dust) and the second organic powder has a water content of about 10% by weight (column 35, lines 60-65 describing that even without blending of dried product with wet feed the system can achieve moisture content approaching zero percent so having dried product mixed in would further help achieve low moisture content), except for a means for adding the organic paste to a first organic powder; and a means for controlling the rate of addition of the organic paste to the first organic powder. However, Van Den Broek teaches an apparatus with a means for adding 26 (figure 1, column 3, lines 4-6 describing the dosing screw conveyor having a variable speed drive and taking the concentrated stream from the hopper to the mixer) a concentrated stream (column 2, lines 54-61 describing a sewage sludge stream after the sewage sludge has been dewatered and concentrated at 12 of figure 1) to a mixer 28 (figure 1) where dehydrated particulate material is combined with the concentrated stream to provide a

feedstock having moisture content from 30 to 50 percent (column 3, lines 6-9) that then enters a second vessel 34 (figure 1) for further drying; a means for controlling 26 (figure 1) the rate (column 3, lines 4-5 describing a screw conveyor having a variable speed drive) of addition of the concentrated stream to the first dehydrated particulate material in order to provide a feedstock having a lower moisture content than the concentrated stream (column 6, lines 4-7). One would be motivated to combine Buttner et al. with Van Den Broek because the similar devices mix dehydrated particulate material with a concentrated stream of sludge prior to the mixture entering a drier and Van Den Broek teaches the known technique of using a dosing screw to control the rate at which a concentrated stream feeds into a mixer (column 3, lines 4-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Buttner et al. reference, to include a means for adding the organic paste to a first organic powder; and a means for controlling the rate of addition of the organic paste to the first organic powder, as suggested and taught by Van Den Broek, for the purpose of providing a feedstock having a lower moisture content than the concentrated stream.

18. In regards to claims 44-48, Buttner et al. as modified by Van Den Broek discloses the claimed invention including from Buttner et al. the first vessel 305 (figure 18, column 34, lines 8-13 stating that the preheater may have the same screws used in carrying out the invention) comprising a vessel for drying organic waste ("waste organic sewage" column 6, line 67-column 7, line 2), the vessel comprising at least two elongate channels 213 (figure 8 showing the channels which are elongate as shown in figure 4), each channel having a length (figure 4 showing that the channels have a length) and a substantially segment shaped cross-section (figure 8 showing the cross-section of the channels); an axle 88, 89 (figure 4) associated with

each channel, each axle 88, 89 (figure 4) mounted for rotation (column 21, lines 10-11) about an axis parallel to the length of its respective channel 213 (figure 8), each axle mounting one or more helical blades 83 (figure 4); and a heater 317 (figure 18, column 34, line 46 describing the boiler and the channels having fluid ducts 214 closely adjacent to the bottom of the screws for auxiliary heating purposes at column 31, lines 45-48) for heating the channels, the second vessel 326 (figure 18) comprising a vessel for drying organic waste ("waste organic sewage" column 6, line 67-column 7, line 2), the vessel comprising at least two elongate channels 213 (figure 8 showing the channels which are elongate as shown in figure 4), each channel having a length (figure 4) and a substantially segment shaped cross-section (figure 8); an axle 88, 89 (figure 4) associated with each channel, each axle 88, 89 (figure 4) mounted for rotation (column 21, lines 10-11) about an axis parallel to the length of its respective channel 213 (figure 8), each axle mounting one or more helical blades 83 (figure 4); and a heater 317 (figure 18, column 34, line 46 describing the boiler and the channels having fluid ducts 214 closely adjacent to the bottom of the screws for auxiliary heating purposes at column 31, lines 45-48) for heating the channels, the apparatus for drying organic waste according to the method of claim 31 (column 1, lines 7-17 describing the invention relating to methods and apparatus for reducing volatile components from pasty material) and the screws having a diameter of 10.5 inches or 0.267 meters (column 35, lines 8-10), except for a radius of between 0.25 m and 0.75 m. It would have been an obvious matter of design choice to increase the radius of the channels from 0.133 m to 0.25 m, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose, 105 USPQ 237 (CCPA 1955).*

19. Regarding claims 49-64, Buttner et al. discloses a method (column 4, line 16) and apparatus (column 4, lines 44-46) for drying organic waste ("waste organic sewage" column 6, line 67-column 7, line 2), comprising the steps of or vessel for mixing and heating a first quantity of organic waste (column 34, lines 8-13 describing a preheater that may include a screw that is the same as used in carrying out the invention) to form an organic powder (column 35, lines 47-65 describing the dried material having a moisture content of about 5% or less), the method is carried out as a step by step process (column 17, lines 1-5 describing the apparatus using previously dried material and recycling it with wet feed similar to Applicant's Specification at page 12, lines 23-28), the method is carried out as a continuous process (column 17, lines 6-15 describing the apparatus drying aqueous waste in the absence of recycling of dried product similar to Applicant's Specification at page 13, lines 4-10), the organic waste has a water content of more than about 40% by weight (column 16, lines 38-40 describing the sludge having an initial water content of 80 percent or more), the organic powder has a water content of about 10% by weight (column 35, line 50 describing the dried material having a moisture content of between 60% down to about 5% or less), a heat exchanger 214 (figure 8), the heat exchanger using the heat generated by the conversion unit to heat the vessel (column 31, lines 45-48 describing the channels having fluid ducts 214 closely adjacent to the bottom of the screws for auxiliary heating purposes), the heat exchanger 214 (figure 8) circulates hot gas (column 17, lines 56-58 describing steam as a suitable heat exchange fluid) beneath the vessel, the vessel comprises at least two elongate channels 213 (figure 8 showing the channels which are elongate as shown in figure 4), each channel having a length (figure 4 showing that the channels have a length) and a substantially segment shaped cross-section (figure 8 showing the cross-section of

the channels); and an axle 88, 89 (figure 4) associated with each channel, each axle 88, 89 (figure 4) mounted for rotation (column 21, lines 10-11) about an axis parallel to the length of its respective channel 213 (figure 8), each axle mounting one or more helical blades 83 (figure 4), the apparatus being capable of drying organic waste according to the method of claim 31 or claim claim 49 (column 1, lines 7-17 describing the invention relating to methods and apparatus for reducing volatile components from pasty material), and the screws having a diameter of 10.5 inches or 0.267 meters (column 35, lines 8-10), except for converting a portion of the organic powder to heat a second quantity of organic waste or a conversion unit for converting a portion of the organic powder to generate heat for heating a second quantity of organic waste, converting a portion of the organic powder comprising burning a portion of the organic powder or the conversion unit is a combustion unit for burning the portion of the organic powder, and a radius of between 0.25 m and 0.75 m. However, Van Den Broek teaches an apparatus with a combustion chamber 38 (figure 1) for converting a portion of the dehydrated particulate material (column 3, lines 21-30 describing the combustion chamber burning solid fuel including the dehydrated particulate sludge) to generate heat for heating (column 3, lines 31-36 describing the combustion products being used in the drier) a second quantity of sludge feedstock in order to permit absorption of the desired quantity of moisture from the sludge feedstock as it passes through the drier (column 3, lines 39-42). One would be motivated to combine Buttner et al. with Van Den Broek because the similar devices use a combustion unit for generating heat for the dryer and Van Den Broek teaches the known technique of burning dehydrated particulate sludge to generate heat (column 3, lines 21-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Buttner et al. reference,

to include converting a portion of the organic powder to heat a second quantity of organic waste or a conversion unit for converting a portion of the organic powder to generate heat for heating a second quantity of organic waste, and converting a portion of the organic powder comprises burning a portion of the organic powder or the conversion unit is a combustion unit for burning the portion of the organic powder, as suggested and taught by Van Den Broek, for the purpose of permitting absorption of the desired quantity of moisture from the sludge feedstock as it passes through the drier.

It would have been an obvious matter of design choice to increase the radius of the channels from 0.133 m to 0.25 m, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose, 105 USPQ 237 (CCPA 1955).*

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to COREY HALL whose telephone number is (571)270-7833. The examiner can normally be reached on Monday - Friday, 9AM to 5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Rinehart can be reached on (571)272-4881. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/C. H./
Examiner, Art Unit 3743

/Kenneth B Rinehart/
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